Summary of 13 Apr 2007 ESP HYSSR Model Runs

18-Apr-07

Assumptions:

- * Streamflows are from the 13 Apr ESP run, which uses current basin conditions combined with 44 historical weather patterns (temperatures and precipitation) to produce 44 ESP hydrographs for 2007.
- * Flood control is set based on the April Final WSF.
- * Grand Coulee operates to meet 135,000 cfs (for Priest Rapids) and 237,000 cfs (for McNary) April 16 through June 30. In June the project refills to 1289 ft in all years. Summer lake targets are 1285.0 ft in July and 1280 ft in August.
- * Hungry Horse operates April May for a controlled refill by 30 June and meets minimum project outflow of 900 cfs and minimum flow of 3,500 cfs at Columbia Falls. The project drafts to 3540 ft by 31 Aug.
- * Brownlee operates to flood control elevations in April refills in June (2077 ft) and drafts in July and August to provide 237 kaf Upper Snake flow augmentaiton water.
- * Dworshak operates for flood control in April, targeting full in June and drafting to 1535 ft and 1520 ft by 31 Aug and 30 Sep
- * Libby operates to VARQ flood control Apr May. The project also meets minimum bull trout flows and the sturgeon pulse volume, both of which are appropropiate for each ESP year. After the sturgeon pulse, Libby releases a flat flow and targets 2439 ft by 31

Results:

Priest Rapids Meets the Following Flow Objectives:

	Occurrences	Average	Flow	
Month	out of 44 Years	Flow for 44 Years (kcfs)	Objective (kcfs)	
Apr 15	44	138	135	
Apr 30	44	165	135	
May	44	196	135	
Jun	43	187	135	

Lower Granite Meets the Following Flow Objectives:

Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	Flow Objective (kcfs)		
Apr 15	0	48	85		
Apr 30	4	70	85		
May	30	91	85		
Jun	21	73	73		
Jul	2	40	50		
Aug 15	0	28	50		
Aug 31	0	31	50		

Bonneville Meets Flow Objectives of 125 kcfs in Apr:

Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	
Apr 15	44	210	
Apr 30	44	257	

McNary Meets the Following Flow Objectives:

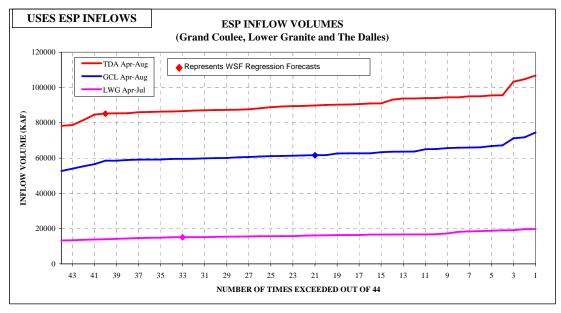
Month	Occurrences out of 44 Years	Average Flow for 44 Years (kcfs)	Flow Objective (kcfs)		
Apr 30	19	238	237		
May	40	291	237		
Jun	33	267	237		
Jul	39	229	200		
Aug 15	4	169	200		
Aug 31	1	157	200		

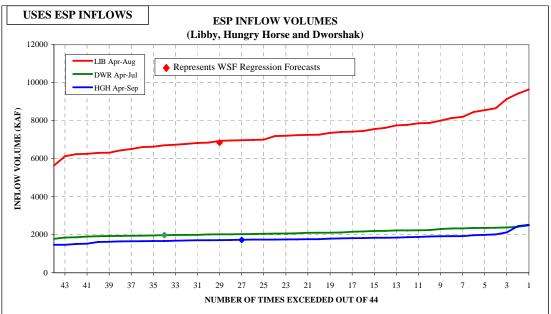
Projects Refill to within 1 foot of full by 30 June:

Month	Occurrences out of 44 Years	Average Elevation on 30 Jun for 44 Years	
Libby	1	2440	
Hungry Horse	44	3560	
Grand Coulee	44	1289	
Dworshak	44	1600	

Period Average Flows (kcfs):

	FEB 1-28	MAR 1-31	APR 1-15	APR 16-30	MAY 1-31	JUN 1-30	JUL 1-31	AUG 1-15	AUG 16-31
LIB	5.5	5.1	9.8	18.4	19.9	23.3	18.5	18.2	18.2
HGH	2.3	2.5	4.8	3.0	5.7	6.2	6.7	4.9	4.5
GCL	83	114	123	147	162	149	167	129	117
PRD	94	134	138	165	196	187	183	137	123
DWR	2.2	4.2	4.2	8.7	9.1	6.1	9.3	9.3	12.8
BRN	15	16	10	18	19	15	13	10	11
LWG	30	44	48	70	91	73	40	28	31
MCN	128	185	206	238	291	267	229	169	157
TDA	136	192	207	252	300	276	232	172	160
BON	149	210	210	257	305	280	235	174	162





Volume Comparison Table (ESP versus Regression) - April Final:

		Official	WSF (Regr	SF (Regression) ESP Volumes					
	Forecast Volume		Percent	30 year	10%	30%	50%	70%	90%
	Period		of	Average	Exceedance	Exceedance	Exceedance	Exceedance	Exceedance
	Period	(kaf)	Average	(kaf)	Probability	Probability	Probability	Probability	Probability
Grand Coulee	Apr-Aug	61600	102%	60290	66600	63600	61400	59800	58500
Lower Granite	Apr-Jul	15100	70%	21550	18700	16700	15900	15200	14100
The Dalles	Apr-Aug	85200	92%	93090	95400	93200	89500	87100	85300
Hungry Horse *	Apr-Sep	1729	84%	2070	1990	1850	1760	1710	1630
Libby **	Apr-Aug	6847	110%	6248	8410	7580	7210	6810	6310
Dworshak **	Apr-Jul	1982	75%	2645	2350	2200	2070	2000	1920

^{*} USBR Official Forecast ** Corps Official Forecast

